EXISTING PEDESTRIAN SYSTEM

Pedestrian facilities are a critical part of the transportation system. For every trip that is made, a portion occurs as pedestrian travel. The benefits of walking are similar to those noted for bicycling: transportation, health, economics, community, and the environment. The Statewide Pedestrian Master Plan (HDOT) developed a stakeholder driven vision for the pedestrian system that promotes the pedestrian mode of transportation as well as protects those that are using the pedestrian system.

Pedestrian facilities can generally be described as any infrastructure that is designed specifically for use by a pedestrian. These include sidewalks, crosswalks, and paths.

The Statewide Pedestrian Master Plan provides information on the existing pedestrian system. **Exhibit 3-25** shows the existing pedestrian system in Wailua and Kapaa. In Kapaa, sidewalks are provided on one or both sides of Kuhio Highway continuously between Pouli Road and Kawaihau Road. A narrow sidewalk is provided in the *makai*-bound direction of Kawaihau Road between Kaapuni Road and Mailihuna Road.

Hawaii’s integrated and multi-modal transportation system provides a safe and well-connected pedestrian network that encourages walking among all ages and abilities. The system promotes a positive pedestrian experience; promotes environmental, economic and social sustainability; fosters healthy lifestyles; and conserves energy.

More people in Hawaii choose to walk for both transportation and recreation as a result of enhanced walking environments, mobility, accessibility, safety, and connectivity throughout the transportation system.

HDOT, 2013a
Chapter 3: EXISTING CONTEXT AND CONDITIONS

EXHIBIT 3-25. Existing Pedestrian System HDOT

LEGEND
- State Highways with Sidewalks on Both Sides
- State Highways with Sidewalks on One Side
- County Road with Sidewalks
- State Highways without Sidewalks
- County Roads without Sidewalks

Source:
1. Roads and Sidewalks - Hawaii Department of Transportation

Notes:
1. The sidewalk data were from a shapefile. The data were manually verified and edited to match the State GIS mile point dataset. The data were then spot checked against the HDOT photo log and edited to match.
Travel Demand Management (TDM) is a term used to describe strategies that reduce travel demands or redistribute travel demands to lessen impacts during peak rush hour periods. TDM measures may include campaigns to encourage people to switch to higher occupancy modes (such as public transit, vanpools, and carpools) or to use non-motorized modes of travel (such as walking and bicycling) to complete their trip.

Examples of TDM measures that are currently being implemented within the study area include providing bicycle- and pedestrian-friendly facilities, public transportation services and infrastructure, and subsidizing transit costs. Campaigns to increase transit use or carpooling, for example, could be considered in the future.

Transportation System Management (TSM) strategies enhance the capacity of the existing transportation system through operational improvements. TSM strategies may include contraflow lanes, high-occupancy vehicle (HOV) lanes, and Intelligent Transportation Systems (ITS). Contraflow lanes reverse the usual flow of traffic, often in locations constrained by topography or existing development. HOV lanes are travel lanes dedicated exclusively or during a portion of the day for carpooling. ITS uses technology to maximize the flow and safety of an existing roadway. A few examples include electronic signs that include traveler information relating to incidents or congestion on roadways, and traveler information on websites that travelers can check before beginning their trips.

Within the study area, a contraflow lane on Kuhio Highway is currently used to facilitate morning peak traffic headed towards Lihue. Beginning at the south terminus of the Temporary Kapaa Bypass Road, one of the two northbound lanes is separated by traffic cones and converted to carry southbound traffic. This southbound contraflow lane is continuous through Wailua and terminates at Kuamoo Road, where two permanent southbound lanes are provided over the Wailua River Bridge. The southbound contraflow lane continues again just south of the Wailua River Bridge, where southbound of Kuhio Highway it becomes one lane, and ends at the intersection of Kuhio Highway and Kapule Highway.

The contraflow lane adds capacity to the southbound direction, but reduces capacity in the northbound direction. During the morning peak, northbound Kuhio Highway is a single travel lane between Kuamoo Road and the south terminus of the Temporary Kapaa Bypass Road. The contraflow lane operates Monday through Friday, generally between 6:00 am and 11:00 am, and on Saturdays from approximately 8:00 am to 1:00 pm.

In the afternoons, when the contraflow lane is not in effect, Kuhio Highway operates with two northbound travel lanes and one southbound travel lane south of the Temporary Kapaa Bypass Road. By managing the existing transportation system, capacity can be gained when demand is highest without added pavement or new permanent roadway facilities.
SAFETY CONDITIONS AND AREAS OF CONCERN

The Highway Safety Improvement Program compiles crash data for state roadways and state and county intersections. Crash data was provided by the HDOT under the protection of 23 U.S.C. 402(k) and 409, and is intended for highway safety and educational purposes only. Intersections on state roadways that had more than 9 crashes during the 2008 to 2010 timeframe are reported as high crash locations. The Island of Kauai reported seven high crash locations island wide, but only one high crash intersection is located within the study area.

- Kuhio Highway (Route 56) at Kuamoo Road.

A total of 12 crashes were reported at this intersection between 2008 and 2010.

Crash data reported between 2007 and 2011 was also provided for this study. This data, compiled by the HDOT Highway Safety Improvement Program, is provided under the protection of 23 U.S.C. 402(k) and 409, and is intended for highway safety and educational purposes only. Crash locations within the study area were generally located in populated areas along Kuhio Highway. Exhibits 3-26 through 3-30 depict the crash locations, the crash type, and the crash severity.

Between 2007 and 2011, nine fatal crashes occurred within the study area. Six fatal incidents occurred on Kuhio Highway between Kauai Beach Drive and just north of the Wailua Golf Course.

One fatal accident was recorded in 2008 on Kuamoo Road, approximately 0.9 mile mauka of Kuhio Highway. Another fatal accident was recorded in 2010 on Kuhio Highway near the north end of Aleka Loop. One fatal crash was recorded on Kawaihau Road near Puukaa Road.

No fatal crashes involving pedestrians, bicyclists, or mopeds were recorded within the study area between 2007 and 2011.

Figure 3-26 shows the locations of motor vehicle crashes within the study area. Non-fatal accidents generally occurred in areas where vehicles often turn onto or off of Kuhio Highway, such as near the Kapaa Shopping Center or the Kauai Village/Waipouli shopping complexes. Non-fatal crashes involving motor vehicles and pedestrians were most common in historic downtown Kapaa. Exhibit 3-27 shows that four incidents occurred near the intersection of Kuhio Highway at Kukui Street, while two recorded incidents occurred near Lehua Street. Two separate vehicle and pedestrian-involved incidents occurred at the intersection of Kuhio Highway and Mailihuna Road.

Crashes involving bicyclists and motor vehicles occurred throughout the study area. Seven crashes occurred along Kuhio Highway while four incidents were recorded on local roadways in the neighborhoods mauka of Kapaa Elementary and High schools. Non-fatal moped and motorcycle crashes primarily occurred on Kuhio Highway, but a handful also were reported on Olohena Road and Kuamoo Road. Bicycle crashes are shown in Exhibit 3-28 while motorcycle and moped crashes are shown in Exhibits 3-29 and 3-30, respectively.

LEGEND

- Schools
- 1 Crash / Fatality
- 10 Crashes / Fatality
- 5 - 10 Crashes / Non-Fatal
- > 10 Crashes / Non-Fatal

- State Highways
- County Roads
- Shopping Centers

Sources:
1. Crash Data - Highway Safety Improvement Program (HSIP). The crash data was provided through the HSIP of Title 23, United States Code, Section 149. The data is protected under Title 23, USC, Section 402(a) and 409, and is intended for highway safety and educational purposes only.

Notes:
1. Crash data were consolidated into one point when multiple were within 0.1 miles of each other.
2. Crash data points were places in reference to mile point data taken from crash data provided by the Highway Safety Improvement Program.

Crash Modes: Motor Vehicle (2007-2011)
Kapaa Transportation Solutions
Chapter 3: EXISTING CONTEXT AND CONDITIONS


Source:
1. Crash Data - Highway Safety Improvement Program (HSIP). The crash data was provided through the HSIP of Title 23, United States Code, Section 402, Title 23, U.S.C. Section 402(c), and is intended for highway safety and educational purposes only.

Notes:
1. Crash data were consolidated into one point when multiple were within 0.1 miles of each other.
2. Crash data points were selected as reference to mile point data taken from Crash Data provided by the Highway Safety Improvement Program.
3. Number of cumulative crashes are labeled at the location of the crash.

Crash Modes: Pedestrian (2007-2011)
Kapaa Transportation Solutions

Source:
1. Crash Data - Highway Safety Improvement Program (HSIP)
   The crash data was provided through the HSIP of Title 23, United States Code, Section 148. The data is protected under Title 23, USC, Section 402(j) and 409, and is intended for highway safety and educational purposes only.

Notes:
1. Crash data were consolidated into one point when multiple were within 0.1 miles of each other.
2. Crash data points were placed in reference to mile point data taken from crash data provided by the Highway Safety Improvement Program.
3. Number of accumulative crashes are based on the location of the crash.

Crash Locations by Mode: Bicycle (2007-2011)
Kapaa Transportation Solutions
Chapter 3: EXISTING CONTEXT AND CONDITIONS


Source:
1. Crash Data - Highway Safety Improvement Program (HSIP). The crash data was provided through the HSIP of Title 23, United States Code, Section 149. The data is protected under Title 23, USC, Section 402(k) and 409, and is intended for highway safety and educational purposes only.

Notes:
1. Crash data were consolidated into one point when multiple were within 0.1 miles of each other.
2. Crash data points were placed in reference to mile point data taken from crash data provided by the Highway Safety Improvement Program.
3. Number of accumulative crashes are labeled on the location of the crash.

Crash Location by Mode: Motorcycle (2007-2011)
Kapaa Transportation Solutions
Existing Wetlands
Freshwater resources are located throughout the study area. As shown in Exhibit 3-31, Kuhio Highway crosses multiple freshwater streams and canals in Kapaa, and designated wetlands are adjacent to major study roadways such as the Temporary Kapaa Bypass Road and Kuamoo Road. The Calvary Chapel Wetland (also known as the Ohai Wetland) is generally bound by Panihi Road to the south and the Temporary Kapaa Bypass Road to the north and west. This wetland is *mauka* of Kuhio Highway and close to the Temporary Kapaa Bypass Road, which indicates it could be affected by potential improvements to the bypass road.

The Kaloko Wetland is situated just south of the southern terminus of the Temporary Kapaa Bypass Road at Kuhio Highway. The wetland is adjacent to Kuhio Highway on the *mauka* side. Given the close proximity to Kuhio Highway, this wetland would likely be affected by any widening of the highway.

Stream crossings are common along Kuhio Highway within Kapaa. At each stream crossing, a bridge structure is necessary to carry traffic and any potential modifications to these bridges may be costly as the effects on the environment would need to be assessed. Modifications to bridge structures on Kuhio Highway would likely also affect traffic flow because in many locations, such as the Kapaa Stream Bridge or the Wailua River Bridge, feasible alternate routes are not available and traffic would likely continue using the bridge during construction. Within Kapaa, an alternate or parallel route to the Waikae Canal and Moikeha Canal bridges would be the Temporary Kapaa Bypass Road.

Existing Historical and Archaeological Sites
Puuopae Bridge is a historically significant single-lane, single-span, concrete and steel bridge over Kalama Stream in Wailua Homesteads. It is located on Puuopae Road, between Kipapa Road and Kalama Road, and mainly serves low volume residential traffic. It is listed on the State Historic Preservation Division Hawaii Register of Historic Places as well as the National Register of Historic Places (NRHP).

Opaekaa Bridge is a single-lane, steel truss bridge on Opaekaa Road just north of Pulana Street in Wailua Homesteads. It serves low volume residential traffic and is listed on the NRHP.

Kapahi Bridge, located on Kawaihau Road between Kahuna Road and Moalepe Road, is a steel, single-span bridge listed as eligible for recommendation for historic status in the 2013 Hawaii State Historic Bridge Inventory and Evaluation (HDOT, 2013b), which indicates this bridge exhibits unique characteristics that may be historically significant.

The Weuweu-Kawai-iki fishponds are listed on the State Historic Preservation Division Hawaii Register of Historic Places and are located *mauka* of Kuhio Highway just north of Kuamoo Road on the former Coco Palms property. These historically significant fishponds are adjacent to a relatively high volume section of Kuhio Highway where the contraflow lane operates during the morning weekday peak period.
In 2012, the area encompassing the Wailua ahupuaa and portions of southern Oloheana and Hanamaulu ahupuaa was identified as being eligible for listing in the NRHP as a historic district (HDOT, 2012a). The Wailua historic district is comprised of multiple traditional cultural properties that contribute to the significance of the district. The *makai* portion of Wailua described as Wailuanaiaho’ano, and also known as Wailua Kai, is eligible for inclusion in the NRHP as a historic district individually as well as contributing to the significance and associations of the broader Wailua traditional cultural property district (USDOT, FHWA, and SHPO, 2013).

Additional historic properties within the study area include cemeteries, a burial site, and a historic house foundation with a firepit. While the majority of historic properties are not immediately adjacent to study area roadways or transportation facilities, three cemeteries are located adjacent to and just *mauka* of Kuhio Highway. These historic properties, which are just south of Kapaa Stream, just north of Waikae Canal, and just south of Waikae Canal, could limit widening improvements on Kuhio Highway.

A historic burial site is located on Inia Street in the downtown district, just *makai* of Kuhio Highway. Further investigation of this site may be necessary to ensure that potential circulation and parking improvements, as well as new non-motorized facilities, do not disturb this historic site.

**EXHIBIT 3-31. Existing Wetlands and Waterway, Kapaa Relief Route Draft EIS (2010)**
Chapter 4 – Potential Solutions
Potential Solutions

The potential solutions were identified through both a technical analysis of existing conditions and input and validation from the TAC and KAC. This chapter begins by describing the methodology for identifying the location of the potential solutions and describes those solutions within each area of Kapaa. The potential solutions described in this chapter form the basis for the systems analysis and project recommendations in Chapter 5.

Methodology

The development process used to identify the potential solutions was based on specific technical factors. The project team worked closely with the TAC and KAC to ensure that the potential solutions identified met the goals and objectives of the Plan and represented community concerns.

To identify the potential solutions, goals, objectives, and evaluation criteria were defined at the beginning of the potential solution development process. They were based on technical knowledge of best practices and previous plans and studies, and reflect the information gathered as part of the inventory of existing conditions.

Stakeholders and the project team identified potential solutions to address the recognized needs and issues in the Kapaa area. The project team then evaluated the potential solutions against the Plan evaluation criteria and worked with stakeholders to prioritize the potential solutions.

Solution Development

The project team drew upon a number of sources to develop the list of potential solutions, as follows:

- Previous plans and studies recommended potential solutions to addressed identified deficiencies.
- Stakeholders validated pre-identified potential solutions and identified additional ones.
- Data collection on crash locations and traffic counts were used to identify safety concerns and locations of congestion.
- Traffic simulations and models identified the location of capacity and congestion issues.

As part of this effort, the project team reviewed relevant previous plans and studies and compiled a list of potential solutions that had been identified. Because many of the studies had been conducted many years ago, it was important to re-evaluate their recommendations and to also look at all of them holistically. The project team reviewed the previously identified potential solutions with the TAC and KAC and learned from them: the background, concerns, and benefits, and whether the potential solutions were still valid. The TAC and KAC also provided additional input and helped to identify new potential solutions.
Based on the background and understanding of the transportation issues and needs unique to the Kapaa area, the project team refined the potential solutions. In addition, based on the existing traffic patterns, crash data, vehicular volumes, and intersection operations, the project team developed additional potential solutions to provide additional capacity and improve congestion and safety. Altogether, a total of 45 potential solutions were developed.

**Solution Evaluation and Prioritization**

The purpose of the evaluation process is to assess the potential solutions by measuring how well they address the Plan’s goals and objectives and the different stakeholder values. The evaluation criteria are tied to the Plan’s goals and objectives and weighted according to their importance related to the project purpose, in coordination with the TAC and KAC. The evaluation criteria were developed before identifying the potential solutions to ensure that they are not biased or tailored toward a specific solution. The evaluation criteria, measures, and scores are shown in Exhibit 2-3 in Chapter 2, Goals and Objectives.

Each potential solution was evaluated against each of the Plan goals, using these measures. A score of 1, 3, or 5 was given, as follows:

» 1: The potential solution does not support the goal.

» 3: The potential solution is not directly related or does not have a significant impact to the goal.

» 5: The potential solutions supports the goal.

Scores for the primary goals were weighted twice as much as the scores for the secondary goals. When a potential solution had been evaluated against all of the goals, the scores were summed into a total grade for that potential solution. The grades were compared between all other potential solutions, and were intended to show the advantages and disadvantages of the potential solutions in relation to each other. Comparisons of the grades were therefore more important than the actual grades themselves. Based on the grades, a preliminary list of prioritized solutions was developed. The prioritized results were shared with the TAC and KAC and further refined based on their input.

**Cost Estimates**

Planning-level cost estimates for the potential solutions were developed, based on conceptual drawings, preliminary project descriptions, bid tabulations, and typical contingencies. Fiscal year (FY) 2012 prices were used in the cost estimates, but final project costs were escalated to the year of expenditure, assuming an annual inflation rate of four percent.

Estimated planning level costs are important variables for each solution because they allow the solution to be evaluated against fiscal constraints, another tool that decision-makers can use to assess feasibility and determine which projects move forward. Prior to being able to implement any range of solutions, the state and county must logically plan and program individual transportation improvements to address priorities and maximize investments.
Time Frame

Because the primary purpose of this effort is to develop near-term solutions to address mobility needs and congestion, the time it will take a potential solution to reach completion becomes one of the most important factors. The time frame of each potential solution was estimated based on its definition, potential environmental impacts and constraints, and whether the acquisition of additional right-of-way is needed. The potential solutions were categorized into three different time frames:

» Short-term solutions – potential solutions that could be implemented in less than 5 years

» Mid-term solutions – potential solutions that will take between 5 and 10 years

» Long-term solutions – potential solutions that are likely to take more than 10 years

The TAC provided input and validated each potential solution’s estimated time frame. For each time frame, a list of prioritized solutions was developed. Exhibits 4-1, 4-2, and 4-3 show the list of prioritized solutions by time frame. The location of the potential solutions are shown on Exhibits 4-5 through 4-7.

Transit and Shuttle Services

Transit vehicles and shuttles can accommodate more people per vehicle than private vehicles, potentially reducing congestion. Potential solutions related to transit and shuttle services include improving mainline transit frequency, expanding shuttle service to serve Wailua Homestead residents, and partnering with the private sector to create a shuttle program to accommodate visitors. These transit service related potential solutions are listed in Exhibit 4-4. Transit-service-related potential solutions were evaluated separately because transit service projects are implemented and operated by the county’s transit agency, the Kauai Transportation Agency, and are funded in part by the county and by the Federal Transit Authority. These funds support transit vehicles operations and maintenance of transit vehicles, and are tracked separately from the infrastructure funding mechanisms. However, these transit service projects will still be considered and ongoing coordination with the transit agency continues to occur to ensure that an effective intermodal transportation system can be provided.

Other opportunities to support transit and shuttle services are with infrastructure improvements that support transit. All of the capacity-related potential solutions should include the consideration of bus stops, bus turnouts, and bus shelters.
<table>
<thead>
<tr>
<th>Project Number</th>
<th>Primary Project Type</th>
<th>Area</th>
<th>Project Location</th>
<th>Project Description</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Safety</td>
<td>Kapaa</td>
<td>Kuhio Highway at Mailihuna Road</td>
<td>Perform intersection improvements</td>
<td>&lt; 5 years</td>
<td>$1,232,000</td>
</tr>
<tr>
<td>6</td>
<td>Capacity</td>
<td>Kapaa</td>
<td>Temporary Kapaa Bypass Road, north of Olohena Road</td>
<td>Addition of one lane in the northbound direction, including pedestrian and bicycle facilities. Improve the intersection at Kuhio Highway and the Temporary Kapaa Bypass Road (northern terminus).</td>
<td>&lt; 5 years</td>
<td>$22,560,000</td>
</tr>
<tr>
<td>17</td>
<td>Congestion</td>
<td>Kapaa</td>
<td>Kuhio Highway and Kukui Street – Traffic Signal</td>
<td>Modify existing signal timing to optimize signal operation and reduce queueing length along Kuhio Highway.</td>
<td>&lt; 5 years</td>
<td>$301,000</td>
</tr>
<tr>
<td>28</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway and Temporary Kapaa Bypass Road (south terminus)</td>
<td>Perform intersection improvements.</td>
<td>&lt; 5 years</td>
<td>$1,232,000</td>
</tr>
<tr>
<td>31</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway at Haleiilo Road</td>
<td>Restrict turns in/out of adjacent commercial driveways. Optimize signal timing.</td>
<td>&lt; 5 years</td>
<td>$522,000</td>
</tr>
<tr>
<td>37</td>
<td>Multimodal</td>
<td>Wailua/ Kapaa</td>
<td>Ke Ala Hele Makalae Multiuse Trail</td>
<td>Complete Phase III.</td>
<td>&lt; 5 years</td>
<td>$11,430,000</td>
</tr>
<tr>
<td>5</td>
<td>Multimodal</td>
<td>Kapaa</td>
<td>Kawaihau Road between Iwaena Road and Mailihuna Road</td>
<td>Construct bicycle and pedestrian facilities.</td>
<td>&lt; 5 years</td>
<td>$1,663,000</td>
</tr>
<tr>
<td>15</td>
<td>Safety</td>
<td>Kapaa</td>
<td>Olohena Road near Kapaa Middle School</td>
<td>Relocate or improve the current crosswalk.</td>
<td>&lt; 5 years</td>
<td>$380,000</td>
</tr>
<tr>
<td>33</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway at Kuamoo Road</td>
<td>Provide shared left/right and right-only turn movements from Kuamoo Road approach during contraflow operations to improve queue/delay. Provide adequate right turn storage length.</td>
<td>&lt; 5 years</td>
<td>$613,000</td>
</tr>
<tr>
<td>42</td>
<td>Transit</td>
<td>Wailua/Waipouli/Kapaa</td>
<td>Various locations</td>
<td>Construct bus shelters to encourage ridership.</td>
<td>&lt; 5 years</td>
<td>$532,000</td>
</tr>
<tr>
<td>43</td>
<td>Transit</td>
<td>Wailua/Waipouli/Kapaa</td>
<td>Various locations</td>
<td>Construct bus pull-outs.</td>
<td>&lt; 5 years</td>
<td>$1,772,000</td>
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<tr>
<td>34</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway at Kuamoo Road</td>
<td>Optimize signal timing.</td>
<td>&lt; 5 years</td>
<td>$301,000</td>
</tr>
<tr>
<td>48</td>
<td>Congestion</td>
<td>Kapaa</td>
<td>Olohena Roundabout</td>
<td>Add a separate eastbound right-turn lane at roundabout from Olohena Road to Temporary Kapaa Bypass Road southbound.</td>
<td>&lt; 5 years</td>
<td>$1,271,000</td>
</tr>
<tr>
<td>2</td>
<td>Safety</td>
<td>Kapaa</td>
<td>Kawaihau Road at Mailihuna Road and Hauaala Road</td>
<td>Perform intersection improvements.</td>
<td>&lt; 5 years</td>
<td>$4,623,000</td>
</tr>
<tr>
<td>32</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway at Haleiilo Road</td>
<td>Provide double left-turn movements from Haleiilo Road to northbound Kuhio Highway during non-contraflow operations. Optimize signal timing.</td>
<td>&lt; 5 years</td>
<td>$301,000</td>
</tr>
<tr>
<td>27</td>
<td>Capacity</td>
<td>Wailua</td>
<td>Kuhio Highway between Temporary Kapaa Bypass Road and Kuamoo Road</td>
<td>Add one southbound lane along Kuhio Highway with improvements at major intersections.</td>
<td>&lt; 5 years</td>
<td>$30,000,000</td>
</tr>
</tbody>
</table>
### Prioritized Mid-term Potential Solutions

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Primary Project Type</th>
<th>Area</th>
<th>Project Location</th>
<th>Project Description</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16</strong></td>
<td>Economic Vitality</td>
<td>Kapaa</td>
<td>Kuhio Highway at Kukui Street Intersection</td>
<td>Close the eastern leg of Kukui Street and convert Kukui Street between Kuhio Highway and Inia Street to business parking. Implement multimodal (vehicular and pedestrian) intersection improvements at Kuhio Highway and Huluili Street.</td>
<td>5-10 years</td>
<td>$539,000</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Safety</td>
<td>Kapaa</td>
<td>Hauaala Road at Kuhio Highway</td>
<td>Terminate the eastern end of Hauaala Road with a cul-de-sac. Create a new connection from Hauaala Road to the Temporary Kapaa Bypass Road. (This project should be complete after or with the Temporary Kapaa Bypass Road widening for two-way travel [Project 6]).</td>
<td>5-10 years</td>
<td>$3,924,000</td>
</tr>
<tr>
<td><strong>8</strong></td>
<td>Congestion</td>
<td>Kapaa</td>
<td>Kapaa New Park</td>
<td>Create a direct access from Kapaa New Park to the Temporary Kapaa Bypass Road, including bicycle/pedestrian access between the existing park and proposed soccer park.</td>
<td>5-10 years</td>
<td>$4,102,000</td>
</tr>
<tr>
<td><strong>19</strong></td>
<td>Economic Vitality</td>
<td>Kapaa</td>
<td>Historic Kapaa Town Parking</td>
<td>Provide shared parking stalls for businesses at United Church of Christ and along Kahau Road, pumping station, library, and industrial zoned lands.</td>
<td>5-10 years</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>20</strong></td>
<td>Congestion</td>
<td>Kapaa/ Waipouli</td>
<td>Kuhio Highway and Lehua Street Intersection</td>
<td>Improve left-turn movements from Lehua Street onto Kuhio Highway.</td>
<td>5-10 years</td>
<td>$103,000</td>
</tr>
<tr>
<td><strong>38</strong></td>
<td>Capacity</td>
<td>Wailua</td>
<td>Kuhio Highway between Kuamoo Road and Kapule Highway</td>
<td>Add one southbound lane.</td>
<td>5-10 years</td>
<td>$43,458,000</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Multimodal</td>
<td>Kapaa</td>
<td>Kawaihau Road between Mailihuna Road and Kapahi Park</td>
<td>Construct bicycle and pedestrian facilities.</td>
<td>5-10 years</td>
<td>$10,806,000</td>
</tr>
<tr>
<td><strong>29</strong></td>
<td>Congestion</td>
<td>Wailua</td>
<td>Temporary Kapaa Bypass Road Southern Terminus</td>
<td>Re-align with Aleka Loop or Papaloa Road with intersection improvements to the Temporary Kapaa Bypass Road (south terminus).</td>
<td>5-10 years</td>
<td>$3,316,000</td>
</tr>
<tr>
<td><strong>21</strong></td>
<td>Capacity</td>
<td>Waipouli</td>
<td>Kuhio Highway between Kauai Village Shopping Center and Akia Road</td>
<td>Add one northbound lane.</td>
<td>5-10 years</td>
<td>$10,684,000</td>
</tr>
<tr>
<td><strong>22</strong></td>
<td>Capacity</td>
<td>Waipouli</td>
<td>Kuhio Highway between Akia Road and the Temporary Kapaa Bypass Road southern terminus</td>
<td>Add one southbound lane.</td>
<td>5-10 years</td>
<td>$22,242,000</td>
</tr>
<tr>
<td>Project Number</td>
<td>Primary Project Type</td>
<td>Area</td>
<td>Project Location</td>
<td>Project Description</td>
<td>Timing</td>
<td>Cost Estimate</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------</td>
<td>------</td>
<td>------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>---------------</td>
</tr>
<tr>
<td>25</td>
<td>Safety</td>
<td>Waipouli</td>
<td>Temporary Kapaa Bypass Road, south of Olohena Road</td>
<td>Improve the horizontal alignment and shoulders of the Temporary Kapaa Bypass Road south of Olohena Road to Kuhio Highway.</td>
<td>5-10 years</td>
<td>$9,112,000</td>
</tr>
<tr>
<td>35</td>
<td>Multimodal</td>
<td>Wailua</td>
<td>Kamalu Road between Kuamoo Road and Olohena Road</td>
<td>Improve Kamalu Road to accommodate non-motorized modes.</td>
<td>5-10 years</td>
<td>$7,820,000</td>
</tr>
<tr>
<td>46</td>
<td>Transit</td>
<td>Wailua</td>
<td>Wailua</td>
<td>Construct a park-n-ride facility in Wailua to encourage public transit ridership.</td>
<td>5-10 years</td>
<td>$1,277,000</td>
</tr>
<tr>
<td>7</td>
<td>Capacity</td>
<td>Kapaa</td>
<td>Kuhio Highway between Kawaihau Road and Lehua Road</td>
<td>Provide a two-way turn lane along Kuhio Highway.</td>
<td>5-10 years</td>
<td>$2,992,000</td>
</tr>
<tr>
<td>26</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway between the Temporary Kapaa Bypass Road and Kuamoo Road</td>
<td>Provide a permanent contraflow lane.</td>
<td>5-10 years</td>
<td>$1,070,000</td>
</tr>
<tr>
<td>9</td>
<td>Safety</td>
<td>Kapaa</td>
<td>Olohena Road at Kahau Road and Lehua Road</td>
<td>Perform intersection improvements and bicycle/pedestrian improvements from the intersection to Kuhio Highway.</td>
<td>5-10 years</td>
<td>$45,651,000</td>
</tr>
<tr>
<td>36</td>
<td>Multimodal</td>
<td>Wailua</td>
<td>Kuamoo Road between Kuhio Highway and Kamalu Road</td>
<td>Improve Kuamoo Road to accommodate non-motorized modes.</td>
<td>5-10 years</td>
<td>$6,965,000</td>
</tr>
<tr>
<td>11</td>
<td>Safety</td>
<td>Kapaa</td>
<td>Olohena Road at Kaapuni Road and Kaehulua Road</td>
<td>Perform intersection improvements.</td>
<td>5-10 years</td>
<td>$5,290,000</td>
</tr>
<tr>
<td>12</td>
<td>Multimodal</td>
<td>Kapaa</td>
<td>Kaapuni Road</td>
<td>Upgrade/improve Kaapuni Road to major collector standards, including bicycle lanes.</td>
<td>5-10 years</td>
<td>$13,156,000</td>
</tr>
<tr>
<td>13</td>
<td>Multimodal</td>
<td>Kapaa</td>
<td>Olohena Road between Kuhio Highway and Kamalu Road</td>
<td>Improve Olohena Road to accommodate non-motorized modes.</td>
<td>5-10 years</td>
<td>$12,053,000</td>
</tr>
<tr>
<td>39</td>
<td>Congestion</td>
<td>Wailua</td>
<td>Kuhio Highway between Kuamoo Road and Kapule Highway</td>
<td>Provide a permanent contraflow lane.</td>
<td>5-10 years</td>
<td>$1,440,000</td>
</tr>
<tr>
<td>47</td>
<td>Transit</td>
<td>Kapaa</td>
<td>Kapaa Bus Hub</td>
<td>Relocate the Kapaa bus hub from its existing location near the skate park to a new location on or near the Kuhio Highway mainline, with amenities.</td>
<td>5-10 years</td>
<td>TBD</td>
</tr>
</tbody>
</table>
### EXHIBIT 4-3. Prioritized Long-term Potential Solutions

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Primary Project Type</th>
<th>Area</th>
<th>Project Location</th>
<th>Project Description</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Capacity</td>
<td>Wailua</td>
<td>Pouli Road Extension</td>
<td>Improve Pouli Road and extend mauka to connect with the Temporary Kapaa Bypass Road (combine with Project 24, if feasible).</td>
<td>&gt;10 years</td>
<td>$23,886,000</td>
</tr>
<tr>
<td>24</td>
<td>Capacity</td>
<td>Wailua</td>
<td>Eggerking Road Extension</td>
<td>Extend Eggerking Road to connect with the Temporary Kapaa Bypass Road (combine with Project 23, if feasible).</td>
<td>&gt;10 years</td>
<td>$6,453,000</td>
</tr>
<tr>
<td>40</td>
<td>Security</td>
<td>Wailua/Kapaa</td>
<td>Wailua Bypass Road</td>
<td>Provide a bypass route around Wailua River Bridge.</td>
<td>&gt;10 years</td>
<td>$229,519,000</td>
</tr>
<tr>
<td>10</td>
<td>Congestion</td>
<td>Kapaa</td>
<td>Connection between Olohe Road and Temporary Kapaa Bypass Road</td>
<td>Provide a new connector road between Olohe Road and the Temporary Kapaa Bypass Road.</td>
<td>&gt;10 years</td>
<td>$25,824,000</td>
</tr>
</tbody>
</table>

### EXHIBIT 4-4. Prioritized Potential Solutions related to Transit and Shuttle Services

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Primary Project Type</th>
<th>Area</th>
<th>Project Name</th>
<th>Project Description</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Transit</td>
<td>Wailua/Waipouli/Kapaa</td>
<td>Kauai Bus - Mainline Service</td>
<td>Improve frequency of mainline transit service through Kapaa and Wailua.</td>
<td>&lt;5 years</td>
<td>$218,000/year</td>
</tr>
<tr>
<td>45</td>
<td>Transit</td>
<td>Wailua/Waipouli/Kapaa</td>
<td>Kauai Bus - Shuttle Service</td>
<td>Provide shuttle service throughout the day to serve Wailua Homestead residents.</td>
<td>&lt;5 years</td>
<td>$109,000/year</td>
</tr>
<tr>
<td>41</td>
<td>Economic Vitality</td>
<td>Wailua/Waipouli/Kapaa</td>
<td>Private Shuttle Service</td>
<td>Create a private shuttle between major Kapaa hotels and a designated location in historic Kapaa town, to reduce visitor vehicle trips.</td>
<td>&lt;5 years</td>
<td>$360,000/year</td>
</tr>
</tbody>
</table>
EXHIBIT 4-6. Potential Solutions in Kapaa Town

6 Temporary Kapaa Bypass Road, north of Olohena Road
7 Kuhio Highway between Kawaihau Road and Lehua Road
8 Kapaa New Park
9 Olohena Road at Kahau Road and Lehua Road
16 Kuhio Highway at Kukui Street Intersection
17 Kuhio Highway and Kukui Street - Traffic Signal
19 Historic Kapaa Town Parking
20 Kuhio Highway and Lehua Street Intersection
21 Kuhio Highway between Kauai Village Shopping Center and Akia Road
48 Olohena Roundabout
EXHIBIT 4-7. Potential Solutions in Wailua

- **26** Kuhio Highway between the Temporary Kapaa Bypass Road and Kuamoo Road
- **27** Kuhio Highway between Temporary Kapaa Bypass Road and Kuamoo Road
- **28** Kuhio Highway and Temporary Kapaa Bypass Road (south terminus)
- **29** Temporary Kapaa Bypass Road South Terminus
- **31** Kuhio Highway at Haleilio Road
- **32** Kuhio Highway at Haleilio Road
- **33** Kuhio Highway at Kuamoo Road
- **34** Kuhio Highway at Kuamoo Road

**Legend**:
- Widing
- New Road
- Contraflow Lane
- Non-motorized Improvement

**Primary Project Type**:
- Capacity
- Congestion
- Safety
- Multimodal
- Economic Vitality
Chapter 5 addresses these issues through a closer look at the following topics:

» Priority Projects for Implementation
» Project Delivery Process
» Projected Funding Sources
» Funding Strategies for Priority Projects
  » Performance Measures and Targets

5 Implementation

Without effective implementation, plans, visions, and recommendations for alleviating congestion and mobility concerns in the Kapaa area are just words on a page. One of the key driving factors for the Kapaa Transportation Solutions project is providing a path forward for solutions that are both effective and implementable. Implementation not only requires funding commitments, it requires smart investments and the ability to monitor progress over time.

Increasing transit service is a potential solution to reduce capacity needs

Priority Projects for Implementation

It is important to understand that the recommendations presented as part of this study are specifically geared to meeting the study purpose, goals and objectives. Many projects listed in Chapter 4 are important to achieving other goals for the County and the community.

To have a clear path forward for implementation of the Kapaa Transportation Solutions projects, it is important to understand the benefits of different individual recommendations as described in Chapter 4. However, it is also important to understand collective benefits – what packages of projects are most beneficial to meeting the project purpose, goals, and objectives?

To assess collective benefits, the project team performed a transportation systems analysis – basically, an examination of multiple, individual improvement projects packaged together and analyzed as a single system. The purpose of a systems analysis is to view the transportation system as a unified whole and to evaluate it within the context of the existing land use, socioeconomic conditions, transportation demand, cost analyses, and performance.

The systems analysis can include individual projects located at opposite ends of the study area or within a concentrated hub; the key is to analyze a set of carefully selected projects together so that their cumulative benefits can be evaluated. How a particular improvement project performs in conjunction with another is an important factor in deciding which projects to consider for implementation.

For the Kapaa Transportation Solutions project, the systems analysis approach allows building upon combinations of potential local and regional projects. For instance, by addressing local congestion or circulation issues in downtown Kapaa, local traffic will improve and regional traffic will experience less congestion traveling through the study area.
Chapter 5: Implementation

The systems analysis included two different scenarios: Group A projects (potential projects that can be implemented within 5 years) and Group B projects (potential projects that will be implemented beyond 5 years). The analysis considered both fiscally constrained and unconstrained scenarios.

Projects for both groups were selected based on their collective benefits and being most beneficial to meeting the project purpose, goals, and objectives. Group A projects include the following:

» **Widening the Temporary Kapaa Bypass Road north of Olohena Road** – By providing one travel lane in the northbound direction, drivers will have an alternate northbound connection from downtown Kapaa to the north. (Project 6)

» **Widening Kuhio Highway between the Temporary Kapaa Bypass Road (southern terminus) and Kuamoo Road** – This project would improve capacity by adding one southbound lane to the highway, and would improve intersection operations at Haleiwa Road and Kuamoo Road. (Project 27)

» **Extending the right-turn lane from Kuamoo Road** – By lengthening this lane to at least 650 feet, more right-turning vehicles would be able to move through the intersection without being blocked by left-turns. (Project 33)

» **Optimizing traffic signals on Kuhio Highway** – Traffic signals at Kukui Street, Haleiwa Road, and Kuamoo Road should be optimized to more efficiently serve northbound and southbound traffic on Kuhio Highway. (Project 17, 31, and 34)

The fiscally constrained Group B scenario includes:

» **Widening Kuhio Highway between Kuamoo Road and Kapule Highway** – This project extends the 4-lane cross section of Kuhio Highway from the Wailua Bridge to Hanamaulu by adding one southbound lane. This project provides nearly 3 miles of capacity and eliminates the need for daily operations of the contraflow lane (an annual cost of $1,165,000/year). (Project 38)

Additional projects included in an unconstrained Group B scenario are:

» **Terminate Hanaula Road at Kuhio Highway** – This project takes advantage of the proposed fully two-way Temporary Kapaa Bypass Road. It reduces the volume of left-turns to and from Kuhio Highway, which improves traffic flow northbound and southbound, by creating a new direct bridge connection to the Temporary Kapaa Bypass Road. (Project 3)

» **Intersection improvements in downtown/historic Kapaa Town** – Improving the Niu Street intersection with Kuhio Highway would relieve traffic at Lehua Street and at Kukui Street by giving vehicles another option to access the highway. Closing the east leg of Kukui Street would allow the intersection to shrink, making it easier for pedestrians to cross. (Projects 16 and 20)

» **Kapaa New Park** – A new direct access from the park to the new Temporary Kapaa Bypass Road would improve circulation and relieve pressure from Kahau Road by providing an alternative access option. (Project 8)

» **Extend Pouli Road** – This project improves and extends the existing Pouli Road from Waipouli Town Center to the Temporary Kapaa Bypass Road. This new connection allows local trips to move between Kapaa and Waipouli Town Center without having to use Kuhio Highway. (Project #23)

» **Extend Eggerking Road** – Extending Eggerking Road to the Temporary Kapaa Bypass Road would improve access between Wailua and Kapaa. When combined with the Pouli Road extension, this project would operate as an alternative to Kuhio Highway and increase travel options between Wailua and Waipouli. (Project #24)

**Performance Criteria**

The Group A and Group B packages were evaluated based on the following two performance criteria, consistent with the purpose, goals, and objectives of the project:

1. **Travel time** – The time it takes a vehicle to travel from one end of the study area to the other. In the AM peak, travel times are most
critical in the southbound direction. Two primary travel paths are available – vehicles can either choose to drive on Kuhio Highway for the entire length between Kapaa Stream and Kapule Highway, or they can use the Temporary Kapaa Bypass Road for a portion of their southbound trip. In the PM peak, northbound travel times will be summarized. For northbound travel, there are two existing primary travel paths – vehicles can either choose to drive on Kuhio Highway for the entire length between Kapule Highway and Kapaa Stream or they can use a portion of the Temporary Kapaa Bypass Road for a portion of their trip. With the improvements included in Group A, the northbound trip on the Temporary Kapaa Bypass Road would be extended, as the roadway would no longer end for northbound travel at Olohena Road.

2. **Person-throughput** – The number of people crossing a specific location within the study area during an identified timeframe, regardless of mode of travel. For example, although a Kauai Bus full of passengers crossing the Wailua Bridge is just one vehicle, it carries a greater person-throughput than one automobile or bicycle crossing the same location at the same time. Person-throughput will be measured at key locations entering and exiting the study area.

**PERFORMANCE RESULTS**

The groups of projects were compared both to existing conditions, and projected future conditions in year 2020 without infrastructure improvements (the “No Action” scenario). For purposes of this analysis, the “No Action” scenario did not include the contraflow lane because it is not considered a sustainable solution due to the expense associated over time. By the year 2020, growth in households and population is expected within the study area. Traffic operations within and through Kapaa and Wailua will worsen without roadway improvements. In the morning, southbound travel times into Lihue can be expected to increase by approximately 75 percent (on Kuhio Highway) from just over 16 minutes today to nearly 29 minutes in 2020. Taking the Temporary Kapaa Bypass Road, a southbound trip during the morning peak will take over 35 minutes in the year 2020. The existing roundabout at Olohena Road and the Temporary Kapaa Bypass Road will be over capacity with high delay on both the eastbound and southbound approaches.

During the afternoon peak, northbound travel times on Kuhio Highway will increase by nearly 4 minutes between Kapule Highway and Mailihuna Road – from just over 24 minutes today to approximately 28 minutes in year 2020. To alleviate travel times, the Group A package of improvement projects address current congestion in the peak direction near the Wailua River Bridge. Southbound travel times during the morning peak are expected to improve by over 5 minutes (driving on Kuhio Highway) and by over 10 minutes (driving on the Temporary Kapaa Bypass Road). The additional southbound lane, which is expected to begin at the southern Terminus of the Temporary Kapaa Bypass Road, will allow a free right-turn movement onto Kuhio Highway. This additional southbound lane will provide increased capacity through Haleiwo Road and Kuamoo Road. Northbound travel times on Kuhio Highway during the afternoon peak are expected to improve by approximately 3 minutes.

Further improvements included in the Group B package of projects include the widening of Kuhio Highway to a 4-lane cross section between Kuamoo Road and Kapule Highway. This additional capacity will eliminate the current southbound bottleneck south of the Wailua River, thereby improving congestion and reducing travel time by nearly 8 minutes, compared to just the Group A projects. In addition, the annual funding ($1,165,000) for the temporary contraflow lane will no longer be needed and can be used for much needed highway maintenance projects.
Some of the travel time results show a slight increase in travel time when looking at Group B (unconstrained) compared to Group B (constrained). While this may seem counterintuitive, the reason for the increase is because of the inclusion in Group B (unconstrained) of Project 3, which would create a new direct connection from Hauaala Road to the Temporary Kapaa Bypass Road. This attractive new roadway connection would improve access to and from the Kapaa Homesteads neighborhoods, and would increase the number of vehicles using the Temporary Kapaa Bypass Road (therefore increasing opportunities for delay at the Oloheana Road roundabout).

Exhibit 5-1 shows a map of the locations described for travel time and person-throughput calculations.

**EXHIBIT 5-1. Travel Time and Person-Throughput Measurement Locations**
Chapter 5: Implementation

Exhibit 5-2 shows the anticipated year 2020 AM and PM travel times between Mailihuna Road and Kapule Highway, using either Kuhio Highway or the Temporary Kapaa Bypass Road, for Group A, Group B (constrained), and Group B (unconstrained), as well as if no projects were to be implemented.

Exhibit 5-3 shows the anticipated year 2020 person through-put at key points of congestion (the Wailua River Bridge and Kapaa Roundabout) for Group A, Group B (constrained), and Group B (unconstrained), as well as if no projects were to be implemented.

**EXHIBIT 5-2. Year 2020 AM and PM Travel Times in minutes (Between Mailihuna Road and Kapule Highway)**

<table>
<thead>
<tr>
<th>AM Peak Hour</th>
<th>No Action</th>
<th>Group A</th>
<th>Group B (constrained)</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southbound - via Kuhio Highway</td>
<td>28.6</td>
<td>23.0</td>
<td>15.1</td>
<td>14.9</td>
</tr>
<tr>
<td>Southbound - via Temporary Kapaa Bypass Road</td>
<td>35.4</td>
<td>24.7</td>
<td>16.3</td>
<td>22.7</td>
</tr>
<tr>
<td>Northbound - via Kuhio Highway</td>
<td>15.6</td>
<td>14.9</td>
<td>14.7</td>
<td>14.5</td>
</tr>
<tr>
<td>Northbound - via Temporary Kapaa Bypass Road</td>
<td>N/A</td>
<td>20.0</td>
<td>19.9</td>
<td>16.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PM Peak Hour</th>
<th>No Action</th>
<th>Group A</th>
<th>Group B (constrained)</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southbound - via Kuhio Highway</td>
<td>22.7</td>
<td>18.3</td>
<td>17.2</td>
<td>17.5</td>
</tr>
<tr>
<td>Southbound - via Temporary Kapaa Bypass Road</td>
<td>20.0</td>
<td>18.7</td>
<td>18.2</td>
<td>20.7</td>
</tr>
<tr>
<td>Northbound - via Kuhio Highway</td>
<td>27.7</td>
<td>24.1</td>
<td>23.6</td>
<td>24.2</td>
</tr>
<tr>
<td>Northbound - via Temporary Kapaa Bypass Road</td>
<td>N/A</td>
<td>25.4</td>
<td>25.3</td>
<td>26.6</td>
</tr>
</tbody>
</table>

Note: Travel times are measured between study area limits via two different paths (Kuhio Highway or Temporary Kapaa Bypass Road).

**EXHIBIT 5-3. Year 2020 Person Through-Put % Served (Kuhio Highway at Wailua River Bridge and Temporary Kapaa Bypass Road at Kapaa Roundabout)**

<table>
<thead>
<tr>
<th>AM Peak Hour</th>
<th>No Action</th>
<th>Group A</th>
<th>Group B (constrained)</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuhio Highway: Southbound at Wailua River Bridge</td>
<td>2013/2832 (71%)</td>
<td>2312/2832 (82%)</td>
<td>2502/2832 (88%)</td>
<td>2457/2832 (87%)</td>
</tr>
<tr>
<td>Kuhio Highway: Northbound at Wailua River Bridge</td>
<td>1046/1049 (100%)</td>
<td>1049/1049 (100%)</td>
<td>1049/1049 (100%)</td>
<td>1049/1049 (100%)</td>
</tr>
<tr>
<td>Temporary Kapaa Bypass Road: Southbound at Roundabout</td>
<td>854/1076 (79%)</td>
<td>1001/1356 (74%)</td>
<td>1006/1356 (74%)</td>
<td>1121/1596 (70%)</td>
</tr>
<tr>
<td>Temporary Kapaa Bypass Road: Northbound at Roundabout</td>
<td>N/A</td>
<td>100/105 (95%)</td>
<td>100/105 (95%)</td>
<td>315/335 (94%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PM Peak Hour</th>
<th>No Action</th>
<th>Group A</th>
<th>Group B (constrained)</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuhio Highway: Southbound at Wailua River Bridge</td>
<td>1352/1589 (85%)</td>
<td>1494/1589 (94%)</td>
<td>1539/1589 (97%)</td>
<td>1544/1589 (97%)</td>
</tr>
<tr>
<td>Kuhio Highway: Northbound at Wailua River Bridge</td>
<td>2638/2815 (94%)</td>
<td>2815/2815 (100%)</td>
<td>2805/2815 (100%)</td>
<td>2785/2815 (99%)</td>
</tr>
<tr>
<td>Temporary Kapaa Bypass Road: Southbound at Roundabout</td>
<td>540/705 (77%)</td>
<td>810/940 (86%)</td>
<td>835/940 (89%)</td>
<td>840/950 (88%)</td>
</tr>
<tr>
<td>Temporary Kapaa Bypass Road: Northbound at Roundabout</td>
<td>n/a</td>
<td>230/250 (92%)</td>
<td>240/250 (96%)</td>
<td>270/285 (95%)</td>
</tr>
</tbody>
</table>

Note: Person-throughput is measured at sample locations where existing congestion/bottlenecks occur (Wailua River Bridge and Kapaa Roundabout).
Priority Project Recommendations

Chapter 4 discussed a wide range of potential projects and how well they individually met the goals, objectives, and evaluation criteria. This chapter provides further analysis by grouping those projects to assess their collective benefits and results. Based on this transportation systems analysis, the Kapaa Transportation Solutions effort recommends for implementation the priority projects listed in Exhibit 5-4 and shown on Exhibit 5-5. These are the projects that best meet the purpose, goals, and objectives of this effort in a financially constrained manner.

As stated earlier, while other projects included in Chapter 4 did not make the list of priority projects for this study based on study purpose, goals, and objectives, other projects included in Chapter 4 may be important for achieving other goals.

The priority list in this study does not imply that other projects in Chapter 4 should not be pursued. The County of Kauai, the State of Hawaii, or both may choose to pursue other projects listed in Chapter 4 to achieve other goals, such as implementing Safe Routes to School.

To establish a constrained list of projects, it is important to understand trade-offs and consider the needs of different users of the transportation system.

The projects are categorized by the following sets of transportation system users:

- **Commuter** – Projects that primarily benefit commuters. These projects also often benefit freight movement.
- **Local** – Projects that primarily benefit local users.
- **Business** – Projects that primarily benefit the local business community.
### EXHIBIT 5-4. Priority Project Recommendations

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Type</th>
<th>Project Location</th>
<th>Project Description</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (Group A)</td>
<td>Commuter</td>
<td>Temporary Kapaa Bypass Road, north of Oloheha Road</td>
<td>Add one lane in the northbound direction, including pedestrian and bicycle facilities. Improve the intersection at Kuhio Highway and the Temporary Kapaa Bypass Road (northern terminus).</td>
<td>$22,560,000</td>
</tr>
<tr>
<td>27 (Group A)</td>
<td>Commuter</td>
<td>Kuhio Highway between Temporary Kapaa Bypass Road and Kuamoo Road</td>
<td>Add one southbound lane along Kuhio Highway with improvements at major intersections.</td>
<td>$30,000,000*</td>
</tr>
<tr>
<td>33 (Group A)</td>
<td>Commuter</td>
<td>Kuamoo Road at Kuamoo Road</td>
<td>Provide shared left/right and right-only turn movements from Kuamoo Road approach during contraflow operations to improve queue/delay. Provide adequate right turn storage length.</td>
<td>$613,000</td>
</tr>
<tr>
<td>17, 31, 34 (Group A)</td>
<td>Local</td>
<td>Kuhio Highway – Traffic Signal Optimization</td>
<td>Modify existing signal timing to optimize signal operation and reduce queueing length along Kuhio Highway at Kukui Street, Haleilio Road, and Kuamoo Road.</td>
<td>$1,124,000</td>
</tr>
<tr>
<td>38 (Group B constrained)</td>
<td>Commuter</td>
<td>Kuhio Highway between Kuamoo Road and Kapule Highway</td>
<td>Add one southbound lane.</td>
<td>$43,458,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL COST (fiscally constrained):</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$67,750,000</strong></td>
</tr>
<tr>
<td>8 (Group B)</td>
<td>Local</td>
<td>Kapaa New Park</td>
<td>Create a direct access from Kapaa New Park to the Temporary Kapaa Bypass Road, including bicycle/pedestrian access between the existing park and proposed soccer park.</td>
<td>$4,102,000</td>
</tr>
<tr>
<td>16, 20 (Group B)</td>
<td>Business</td>
<td>Intersection improvements in downtown/historic Kapaa Town</td>
<td>Improving the Niu Street intersection with Kuhio Highway would relieve traffic at Lehua Street and at Kukui Street by giving vehicles another option to access the highway. Closing the east leg of Kukui Street would allow the intersection to shrink, making it easier for pedestrians to cross.</td>
<td>$642,000</td>
</tr>
<tr>
<td>3 (Group B)</td>
<td>Commuter</td>
<td>Hauaala Road at Kuhio Highway</td>
<td>Terminate the eastern end of Hauaala Road with a cul-de-sac. Create a new connection from Hauaala Road to the Temporary Kapaa Bypass Road. (This project should be complete after (or with) the Temporary Kapaa Bypass Road is widened for two-way travel – Project 6).</td>
<td>$3,924,000</td>
</tr>
<tr>
<td>24 (Group B)</td>
<td>Business</td>
<td>Eggerking Road Extension</td>
<td>Extend Eggerking Road to connect with the Temporary Kapaa Bypass Road (combine with Project 23, if feasible).</td>
<td>$6,453,000</td>
</tr>
<tr>
<td>23 (Group B)</td>
<td>Business</td>
<td>Poulil Road Extension</td>
<td>Improve Poulil Road and extend mauka to connect with the Temporary Kapaa Bypass Road (combined with Project 24, if feasible).</td>
<td>$24,406,000</td>
</tr>
</tbody>
</table>

* The funds for this project have already been obligated and are not included in the subtotal and total costs.
EXHIBIT 5-5. Priority Project Locations

- Hauaala Road at Kuhio Highway
- Kapaa New Park
- Temporary Kapaa Bypass Road, north of Olohena Road
- Intersection Improvements in Downtown Historic Kapaa Town
- Kuhio Highway - Traffic Signal Optimization
- Kuhio Highway at Kuamoo Road
- Kuhio Highway between Kuamoo Road and Kapule Highway
- Kuhio Highway between Temporary Kapaa Bypass Road and Kuamoo Road
- Pouli Road Extension
- Eggerking Road Extension

LEGEND

- Priority
- Group A
- Group B (Constrained)
- Group B
Transit Recommendations
In addition to the recommended priority projects, it is important to recognize that transit is important to achieving several project goals. Specific project goals that would benefit from transit solutions include the following:

» Developing transportation system projects that support the land use
» Reducing congestion within Wailua and Kapaa
» Promoting transit use
» Preserving and enhancing Kauai’s natural environment

Chapter 4 (Exhibit 4-4) includes a list of prioritized potential solutions related to transit and shuttle services, ranging from increases in service frequency to additional shuttle service. The priority list in this study does not imply that other projects in Chapter 4 should not be pursued. The County of Kauai, the State of Hawaii, or both may choose to pursue other projects listed in Chapter 4 to achieve other important goals.

Project Delivery Process
The project delivery process is a key piece of the project life cycle. Project delivery occurs after planning and programming. Planning includes studies like this one. Programming includes identifying funding sources for a project and adding the project into the Statewide Transportation Improvement Program (STIP) or local budget. The STIP connects projects with specific funding programs and allocates funds to implement project solutions over a 4 year period. As projects are programmed and budgeted, they move into the project delivery stage.

Project delivery includes preliminary engineering (environmental and early project design), design and plan development (final engineering), and bidding for construction. Exhibit 5-6 illustrates the life cycle of a project. During the project delivery stage, a more thorough engineering analysis is conducted on a project’s feasibility. During this time, the project will further evolve and may change or be refined from the initial higher-level analysis conducted in the planning stages.

The Kapaa Transportation Solutions are fiscally constrained, acknowledge the limited amount of transportation funds, and responsibly allocate or assign funds to priority projects. However, projects can get stuck moving from planning to project delivery or through project delivery, for a variety of reasons. Sometimes funding is not available. Sometimes the project has not been described clearly, and requires work to gain consensus or understanding. Sometimes a project requires environmental clearance. Sometimes a project requires right-of-way.

As discussed in Chapter 2, Goals and Objectives, the recommendations in the Kapaa Transportation Solutions were derived through application of evaluation criteria consistent with the purpose, goals, and objectives. Many of these criteria are related to mitigating project-delivery stumbling blocks, such as selecting projects that minimize right-of-way needs. The analysis required to apply the criteria also provides information that will simplify the environmental-review process.
(such as inventorying wetlands, threatened and endangered species, cultural resources, and historic resources).

This environmental-resource information was mentioned in Chapter 3. By better connecting planning, environmental review, and project delivery for the recommendations of this effort, potential stumbling blocks and delays will be reduced.

**Context Sensitive Solutions**

The Kapaa Transportation Solutions recommendations were developed using a context sensitive solutions (CSS) framework. According to FHWA, CSS is defined as:

“a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.” (AASHTO/FHWA, 2007)

The Kapaa Transportation Solutions project incorporated goals and objectives beyond traditional transportation-oriented goals and objectives to reflect the context of the Kapaa area, such as:

» **Goal 12**: Maintain the rural character of the project area

» **Goal 13**: Preserve and enhance Kauai’s natural environment.

Goals 12 and 13 include objectives that relate to important values for Kauai, including limiting residential growth on agricultural lands in Wailua and Kapaa, providing transportation facilities that complement the rural character, minimizing impacts to the environment, and providing transportation facilities that complement the natural environment and enhance quality of life.

Goals 12 and 13 and their objectives – along with the other goals and objectives discussed in Chapter 2 - guided the development of Kapaa Transportation Solutions recommendations and provided a foundation for the performance measures and targets developed as part of the process.

An important component of CSS is context sensitive design, or ensuring that design and construction of projects incorporate understanding of the natural and built environment as well as community and cultural aspects. FHWA identifies the following characteristics for context sensitive designs:

» The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic, and natural resource values of the area.

» The project is a safe facility for all users and the community.

» The project solves problems and satisfies the purpose and needs identified by a full range of stakeholders.

» The project exceeds the expectations of both designers and stakeholders and is perceived as adding lasting value to the community as a whole.

» The project involves efficient and effective use of resources (time, budget) of all involved parties.

As the Kapaa Transportation Solutions recommendations are implemented, the work will be done with a context-sensitive approach.

**Projected Funding Sources**

This section discusses potential federal, state, and local (County of Kauai) funding sources for implementation of Kapaa Transportation Solutions recommendations. This section is consistent with information included in the Federal-Aid Highways 2035 Transportation Plan for the District of Kauai (HDOT, 2014).

Transportation funding in the State of Hawaii comes from a combination of federal, state, and local funds, and Hawaii, like many other states, does not have unlimited transportation funding to meet all the transportation needs.
Per HDOT policy (Memorandum 2.6453, dated December 8, 2007), an inflation rate must be used when developing financial plans that include projects funded by federal dollars in the STIP. The HDOT has developed a methodology that uses the average inflation rate as reported by Consumer Price Index data to estimate a constant inflation rate for all financial planning. Based on inflation data from 2003 to 2006, a constant inflation rate of 4 percent per year was calculated. The Highways Division Staff Services Office is responsible for validating and updating the inflation rate each budget cycle.

When adjusted for inflation, federal and state revenues available for all transportation projects – including operations and maintenance - between FY 2011 and FY 2035 would total approximately $7.01 billion. However, this is for all transportation projects statewide. A specific breakdown for Kauai is discussed in the next sections along with more information on federal, state, and local funding sources.

**FEDERAL FUNDING**

To present a conservative estimate of available federal funds, one can assume a constant average amount of approximately $152 million annually for the State of Hawaii.

Federal funds come from the Highway Trust Fund and are raised primarily through the federal gas tax. Federal funding primarily is intended for the maintenance and construction of the federal highway system and for major arterials and collectors that feed into the highway system.

The adoption of MAP-21 in July 2012 changed federal funding methods for future fiscal years. MAP-21 changed the way program funding is distributed to individual states. Previously, core federal highway programs distributed funds to states using individual formulas. With new legislation, a proportional lump sum is distributed to states (based on 2012 distributions received under SAFETEA-LU), and states are able to distribute funds internally to their core programs, with flexibility to transfer funds from one program to another.

While investing in the transportation system could involve new facilities, MAP-21 guidance is largely focused on improving or enhancing current assets, and preserving and maintaining the condition of existing infrastructure.

The Highway Trust Fund, dependent upon the gas tax, has been decreasing for all states over the past few years as the vehicle fleet becomes more fuel efficient and per capita Vehicle Miles Traveled (VMT) continues to decrease nationwide. The Congressional Budget Office estimates that the Highway Trust Fund will not be able to sustain current levels of expenditure without additional funds.

**STATE FUNDING**

State funds come from the following six primary sources:

- Highway fuel license tax
- Vehicle registration fees
- Weight taxes
- Rental/tour vehicle surcharge
- Interest
- Miscellaneous

Over the past decade of transportation funding, more than 60 percent of all state revenues have been generated from fuel taxes and rental/tour vehicle surcharges. Exhibit 5-7 represents the breakdown of revenues by sources (FY 2011).
While federal funding is projected to remain constant, state funding revenues are expected to grow on an annual basis of approximately 1 percent per year.

**KAUAI DISTRICT FUNDING**

According to the *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai*, historically Kauai has received approximately 8 to 10 percent of the federal and state highway funds. Based on historical distributions, Kauai could expect to receive approximately $630 million dollars for transportation projects between FY 2011 and FY 2035. The HDOT’s goal is to program approximately $40 million over the next 10 years to implement priority projects identified in this planning effort. This will be dependent on the priorities that emerge over the next 10 years as emergencies or other critical issues may arise.

STIP programming focuses on a short-term timeframe, and contributes to implementing the long-term vision for the transportation system identified in the *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai*. The projects recommended in the Kapaa Transportation Solutions project must support the priorities and available funding identified in the *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai*.

Based on historic spending, stakeholder values, needs, and plan goals, the *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai* provides the future funding distribution by program for Kauai. This is also consistent with MAP-21 and is shown in Exhibit 5-8.

**EXHIBIT 5-8. Future Funding Distribution by Program**

<table>
<thead>
<tr>
<th>Funding Program</th>
<th>Distribution Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Preservation</td>
<td>45%</td>
</tr>
<tr>
<td>Safety</td>
<td>18%</td>
</tr>
<tr>
<td>Capacity</td>
<td>25%</td>
</tr>
<tr>
<td>Congestion</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td><strong>TOTAL: 100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

**COUNTY FUNDING**

The County of Kauai also has limited funding availability. The County has a 6-year Capital Improvement Program (CIP) in which it lists future capital investments. The County can use General Fund dollars and Highway Fund dollars for transportation projects. According to the County of Kauai, the funds outlined in Exhibit 5-9 are allocated for FY 2013-2014 for the entire county – for ALL projects island-wide, not just transportation. This provides a basis of understanding of the level of funding available for potential Kapaa projects.

**EXHIBIT 5-9. County of Kauai FY 2013-14 Funding Allocation**

<table>
<thead>
<tr>
<th>Name of Fund</th>
<th>Allocation Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bikeway Fund</td>
<td>$42,577</td>
</tr>
<tr>
<td>Bond Fund</td>
<td>$40,481,351</td>
</tr>
<tr>
<td>Development Fund</td>
<td>$35,568</td>
</tr>
<tr>
<td>General Fund (CIP)</td>
<td>$2,634,945</td>
</tr>
<tr>
<td>Highway Fund (CIP)</td>
<td>$739,592</td>
</tr>
<tr>
<td>Sewer Trust Fund</td>
<td>$614,030</td>
</tr>
<tr>
<td>Special Trust Fund - Parks &amp; Playgrounds</td>
<td>$5,387,278</td>
</tr>
<tr>
<td><strong>TOTAL ALL FUNDS: $49,935,341</strong></td>
<td></td>
</tr>
</tbody>
</table>

Historically, the County of Kauai has spent approximately $1 million to $3 million in local funds each year for transportation-related projects island-wide. If this continues, approximately $10 million to $30 million could be anticipated for transportation improvements over the next 10 years. However, this is for all transportation projects (e.g., system preservation, new improvements, and bus infrastructure) island-wide, and not specifically for East Kauai. In addition, other critical priorities could emerge such as emergency repairs.
Funding Strategies for Priority Projects

The total list of priority projects identified during the Kapaa Transportation Solutions effort will outstrip the availability of federal, state, and local funding. Federal, state, and local funding sources have not kept up with the demands for the transportation system.

The fuel tax, which is the largest contributor to the state’s transportation budget, is levied based on fuel consumption and is subject to volatility in usage patterns. Consumption patterns can be impacted by improved vehicle efficiency and overall economic conditions. Other tax-based revenue streams are subject to legislative approval and are not modified on a regular basis to keep pace with increasing needs and costs.

Implementation of certain Kapaa projects may require a variety of methods and potential alternative revenue sources, such as the following:

Mileage-based user fees
- Drivers pay a fee based on the number of miles traveled on public roadways (private roadways would be excluded).
- Mileage could be tracked through various methods, and prices set based on congestion, location of travel, type of road, or a flat fee per mile.
- A number of states are implementing pilot programs to study this as a viable alternative to the gas tax.

Special general excise tax on automotive parts and services
- Taxes would be collected through the performance of specific services (such as vehicle inspections or repairs) and the sale of equipment related to motorized vehicles.

General excise tax increase
- A portion of revenue from an increase in the general sales tax could be allocated to transportation improvements and projects.
- Needs to be approved by the legislature or appropriate council.

Public/private partnerships
- An agreement between a private entity and a public agency to deliver transportation projects may be made, typically with greater involvement and risk taken by the private entity.

Impact fees on new development/right of way donations
- Private developers pay a pre-determined fee per development unit. This fee is based on the number of vehicle trips expected to be generated by the potential development.

Bicycle registration
- A bicycle-licensing system could be developed, and user fees could be collected based on the type of bicycle registered. Fees could support maintenance and upkeep of bicycle lanes and shared roadways.

Carbon tax/cap
- A fee or tax could be imposed on producers of large amounts of carbon. These producers would pay a fee to offset their carbon production.

Increase current funding sources
- Because new sources of funding are difficult to identify, increasing the existing mechanisms – such as raising the rental/tour vehicle surcharge or vehicle weight tax – could generate additional revenue.

Tolls
- Drivers pay a fee each time a specific public roadway is used or a certain bridge is crossed. Toll fees may change based on the time of day. Tolling in Hawaii would require the legislature to change the current laws that prohibit toll charges.

Grant anticipation borrowing
- This strategy allows public agencies to borrow against anticipated future federal and/or state revenues to fund capital projects that require large upfront expenditures. Existing programs include Grant Anticipation Revenue Vehicle (GARVEE) bonds for highways and Grant Anticipation Note (GAN) bonds for transit.
State infrastructure banks and other revolving loan funds

- These are lending organizations initially funded with federal grants, state funds, or both, and operated at the state level. These funds leverage federal and state resources by lending rather than granting federal-aid funds, and can attract nonfederal public and private investment.

Bonds

- Bonds are issued by the state or other agency to finance assets with long useful lives (such as transportation projects). The administering entity issues bonds with a set return on investment, and investors purchase the bonds to help fund transportation projects. Bonds help smooth the impact of large expensive projects by providing upfront capital, and allowing the state or county to repay over a set amount of time.

Land swaps and donated lands

- This strategy recognizes that right-of-way costs can be a large portion of total transportation project costs. Working with land owners to either swap land for right-of-way or to donate land for a project could be a way to reduce project costs. Donated land could also be used as a local match to leverage federal funds.

Transportation Investment Generating Economic Recovery (TIGER) grants

- These are nationally competitive federal discretionary grants for investment in road, rail, transit, and ports to achieve national objectives. Since 2009, Congress has dedicated more than $4.1 billion through this program.

Community Development Block Grants

- This program is administered through the U.S. Department of Housing and Urban Development (HUD), and provides annual grants on a formula basis to promote affordable housing, provide services to community members, and create jobs through the expansion and retention of businesses. This could be an option for the Lihue area.

Safe Routes to School Grants

- Since the passage of MAP-21, funding of safe routes to school has been administered differently, depending on the state. The HDOT administers a program called SafeRoutes, which includes education and small grant awards for both infrastructure and non-infrastructure projects.

U.S. Department of Defense and Federal Emergency Management Agency funding

- Some projects may be eligible for U.S. Department of Defense (DOD) or Federal Emergency Management Agency (FEMA) funding, depending on the project’s ability to meet DOD or FEMA objectives (for example, preparedness grants).

Transit Grants

- Transit projects may be eligible for a variety of programs/grants funded through the Federal Transit Administration (both Formula and Discretionary funds).

Performance Measures and Targets

**DEFINING PERFORMANCE MEASURES AND TARGETS**

Performance Measures are metrics used to assess progress toward meeting goals and objectives. Chapter 2 includes detailed information about the goals, objectives, and evaluation criteria used for this project. For the Kapaa Transportation Solutions project, the performance measures are a subset of the evaluation criteria, and will be used to evaluate the effectiveness of the Kapaa Transportation Solutions recommendations over time. The performance measures are consistent with the purpose of the project, the goals, and the objectives.

According to FHWA’s Performance-Based Planning and Programming guidance, performance measures have five critical purposes:

1. **To clarify the definition of goals**
   - Performance measures are a tool that is used in converting broad goals into measurable objectives.

2. **To monitor or track performance over time**
   - Metrics are used to track performance on regular basis (such as yearly).
3. **As a reference for target setting** - Metrics are used as the basis for selecting a target that is intended to be achieved.

4. **As a basis for supporting policy and investment decisions by comparing alternative options** - Metrics are used as a basis for comparing alternative investments or policies in order to make decisions.

5. **To assess the effectiveness of projects and strategies** - Metrics are what enable measurement to assess whether projects and strategies have worked to further goals.

**Targets** are specific levels of performance desired to be achieved within a specific timeframe. A target is an expression of a desired outcome. To understand the difference between a performance measure and a target, the following graphic shows how each is defined.

Targets are assessed over time, and can be altered to fit changes over time. For example, say a health professional checks in at 6 months with the hypothetical person trying to lose weight. If the person has lost 5 pounds, not 10, it may be that the weight-loss method the person is using needs to be re-assessed, or perhaps that the target needs to be changed because it is unrealistic. If at 6 months the person has lost 10 pounds, the target can be changed to losing more weight, or perhaps to stabilizing weight loss. Targets work best when they are clear and specific, straightforward to measure, and monitored regularly.

**KAPAA TRANSPORTATION SOLUTIONS - PERFORMANCE MEASURES AND TARGETS**

The foundation for the performance measures and targets selected as part of the Kapaa Transportation Solutions project includes the project purpose and the goals and objectives. The purpose of the Kapaa Transportation Solutions project is to develop nearer-term transportation solutions to address mobility and congestion needs for all modes of transportation in the Kapaa Area.

Past experience with other plans has shown that establishing too many performance measures and targets means they will not be monitored, because they are too data-intensive or time-intensive and staff has limited time and resources. Therefore, for the Kapaa Transportation Solutions project, the project team selected a small number of performance measures and targets that will be realistic to monitor over time and are most meaningful to understanding the effectiveness of implementation. The listed performance measures and targets are specifically for measuring the effectiveness of the study and the projects recommended in this study, consistent with the project purpose, goals, and objectives. Other performance measures and targets, such as those identified in County of Kauai Complete Streets reporting, can and should still be used for projects in the area as appropriate. *Exhibit 5-10* presents information on the performance measures and targets for the Kapaa Transportation Solutions project.
EXHIBIT 5-10. Kapaa Transportation Solutions Performance Measures and Targets

<table>
<thead>
<tr>
<th>Goals</th>
<th>Performance Measures</th>
<th>Targets</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve regional and local vehicular/freight capacity and reduce congestion through Wailua and Kapaa.</td>
<td>Person-throughput</td>
<td>Increase person-throughput by 5 to 10 percent in 5 years</td>
<td>The TAC and KAC recognized that person throughput is a key success factor for implementation of projects in the Kapaa Area.</td>
</tr>
<tr>
<td>Efficiently plan and implement effective mobility solutions within a short time frame (5 to 10 years).</td>
<td>Number of solutions implemented within 5 years&lt;br&gt;Number of solutions implemented within 10 years</td>
<td>4 to 5 solutions in 5 years&lt;br&gt;8 to 10 solutions in 10 years</td>
<td>This performance measure will help track and help ensure that the plan is actively being implemented in the short-term. The collective recommendations from the plan are meant to represent the most effective way of meeting the project goals and objectives regarding mobility.</td>
</tr>
<tr>
<td>Create a balanced, multimodal Complete Streets transportation network that provides options for and access for bicycles and pedestrians. Promote transit use.</td>
<td>Number of projects implemented that have bicycle and pedestrian facilities within 5 years&lt;br&gt;Weekday transit ridership</td>
<td>4 to 5 solutions in 5 years&lt;br&gt;Increase weekday transit ridership by 5 percent in 2 years</td>
<td>Increasing transportation choices and providing the necessary infrastructure will encourage the progress toward promotion of multimodal or non-infrastructure options for travel.</td>
</tr>
<tr>
<td>Improve safety of the community and maintain safe operations for all transportation modes.</td>
<td>Number of traffic collisions involving serious injuries and fatalities.</td>
<td>Zero fatalities</td>
<td>Although safety is a secondary goal for the project, it is important to monitor.</td>
</tr>
<tr>
<td>Maintain the rural character of the project area. Preserve and enhance Kauai’s natural environment.</td>
<td>Address in East Kauai Community Plan 2035&lt;br&gt;Projects implemented are consistent with the rural character of the project area and preserve and enhance Kauai’s natural environment&lt;br&gt;Annual gallons of motor fuel consumed in Kapaa-Wailua region</td>
<td>Upon Plan completion&lt;br&gt;All projects recommended in this study are designed in ways that minimize environmental and community impacts&lt;br&gt;Reduce motor fuel consumption each year</td>
<td>Land use is an important component of the overall approach to managing congestion in the Kapaa Area. The East Kauai Community Plan 2035 should be consistent with the Kapaa Transportation Solutions project. Project design of recommendations should minimize impacts on the environment and rural character. Consumption of motor fuel is a way to measure impacts on the natural environment.</td>
</tr>
</tbody>
</table>

**MONITORING**

Monitoring and reporting on the effectiveness of this plan will help the HDOT, the County of Kauai, and the public understand how the Kapaa Transportation Solutions project is progressing toward the purpose, goals, and objectives put forth in the Plan. The HDOT and County of Kauai are responsible for monitoring and reporting on the performance measures and targets identified in this plan, as shown in Exhibit 5-11.

Reporting is not meant to be arduous, but it is meant to provide information that can inform future actions. The report should include the following information:

- Executive summary
- Description of the projects or program implemented since the last report
- Description of other external changes (for example, political, environmental, or socio-economic) since the last report
- Performance measurement and results, including whether or not the transportation or land use system is meeting the targets
- Recommendations regarding next steps (such as describing what was accomplished, what was learned, and what might need to be changed)
CONCLUSION
Collectively, the priority projects for implementation, transit recommendations, and monitoring of performance measures and targets will help the Kapaa area - along with the Hawaii Department of Transportation and the County of Kauai - to meet the goals and objectives for Kapaa Transportation Solutions:

» Developing transportation system projects that support the land use (businesses, parks, schools, etc.);
» Improving regional vehicular/freight capacity and reducing congestion through Wailua and Kapaa;
» Improving local vehicular/freight capacity and reducing congestion through Wailua and Kapaa;
» Improving access and connectivity between the communities of Wailua, Waipouli, and Kapaa;
» Efficiently planning and implementing effective mobility solutions within a short time frame (5 to 10 years);
» Minimizing project costs;
» Creating a balanced, multimodal “Complete Streets” transportation network that provides options for and access for bicyclists and pedestrians;
» Improving safety of the community and maintaining safe operations for all transportation modes;
» Promoting transit use;
» Promoting the expansion of historic Kapaa’s economy through efficient and effective use of transportation facilities and amenities;
» Minimizing impacts to right-of-way;
» Maintaining the rural character of the project area; and
» Preserving and enhancing Kauai’s natural environment.

The recommendations included in this study build upon a foundation of previous work to lay out a roadmap for implementation opportunities. Implementation of solutions will enhance the transportation system in the Kapaa area while remaining respectful of the people, the planet, and the place.

County of Kauai. 2010a. Resolution establishing a Complete Streets Policy for the County of Kauai. September 15.
County of Kauai. 2014c. County of Kauai Capital Budget FY2015.
County of Kauai Transportation Agency. 2014. Transit Ridership Data.


State of Hawaii Department of Transportation (HDOT). Highway Safety Improvement Program (HSIP) Data.


